Inventor: HANNOUFA et al.
Docket No.: 00270.0078USWO
TWEE REGULATION OF TENE EXPRESSION USING CHROMATIN REMODELLING
FACTIONS.
Attorney Name: Gregory A: Sebald
Phone No.: 612.336.4728
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М	T	E	Î	A	Y		N	A	Q	D	L	L	V	E	WT-ROS	
М	T	D	M	A	T	G	N	A	Q	D	L	L	v	E	SYNROS	
М	T	E	T	A	Y	G	N	. A	P	E	L	· L	V	E	ROS-R	
M	T					G	N	A	Q	D	L	L	V	E	ROS-AR	
1-1	_	$\mathbf{\underline{E}}$. <u>T</u>	<u>s</u>	$\overline{\mathbf{r}}$	G	$\underline{\mathbf{T}}$	<u>s</u>	$\overline{\mathbf{n}}$	E	L	L	V	E	MUC-R	
L	${f T}$	Α	D	I	v	Α	Α	Y	v	s	N	н	v	v	WT-ROS	
L	\mathbf{T}	A	D	I	v	A	A	Y	v '		N	н	v	v	SYNROS	
L	T	A	D	I	v	Α	Α	Y	V	S	N	H	v	v	ROS-R	
L	T	Α	D	I	v	A	Α	Y	ν	s	N	н	v	v	ROS-AR	
L	${f T}$	Α	E	I	v	A	A	Y	V	s	N	Н	v	v	MUC-R	
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P		T	E	L	P	G	Ь	I	S	. D	V	H	${f T}$	A	WT-ROS	
	V.	T	E	L	P	Ģ	L	I	s	D.	V	H	${f T}$	Α	SYNROS	
P	V	. S	D	L	A:	N	${f r}$	·I	S	D	V	H	S	Α	ROS-R	
P	v	T	E	L	P	G	L	I	S	D	V	H	${f T}$	Α	ROS-AR	*
P	V	A	$\mathbf{\underline{E}}$	L	$\underline{\mathbf{P}}$	T	\mathbf{L}	I	<u>A</u>	Ð	V,	H	<u>s</u>	Α	MUC-R	•
L	s	G	Т	s	A	P	A	s	ν	Α	v	N	v	E	WT-ROS	
L	s	G	\mathbf{T}	s	A	P	A	s	v	A	v	N	V	E		
. Ъ	s	N	T	s	v	P	Q	P	A	A	A	V .	v	E.	SYNROS	
L	S	G	$^{-}$	S	A	P	A	s	v	A	v	N	V		ROS-R	
L	N	N	T	<u>T</u>	<u>A</u>	P	A	P					V	E	ROS-AR	
		=1	•	=	==	-	=	<u>=</u>	$\underline{\mathbf{v}}$	v	<u>v</u>	P	V	E	MUC-R	
K	Q	K	P	A	v	s	V	R	K	s	٧	Q	D	D	WT-ROS	
K	Q	K	P	Α	V	s	V	R	ĸ	s	v	Q	D	D	SYNROS	
K	Q	K	P	Α	v	S	V	R	K	S	V	. Q	D	E	ROS-R	
K	Q	K	P	Α	v	s	V	R	K	S	V	Q	D	D	ROS-AR	
K	P	Ķ	P	Α	V	S	V	R	K	s	v	Q	. D	$\overline{\mathbf{D}}$	MUC-R	
н	I	v	С	ь	E	С	G	G	s	F	7.7					
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H	I	v	Ċ	L	E	C	G	G	S	F	K K	s s	L	K	ROS-R	
Q	ī	T	c	L	E	C	G	G	T	F	K	s	L	K	ROS-AR	
	-	-		_		C	G	G	_	F	K	3	ь	K	MUC-R	
R	H	L	T	. T	H	H	S	M	${f T}$	P	E	E	Y	R	WT-ROS	
R	H	\mathbf{L}	T ·	${f T}$	H	H	S	M	T	P	E	E	Y	$\cdot R$	SYNROS	
R	H	\mathbf{L}^{\cdot}	M	T	H	H	S	L	S	P	\mathbf{E}	E	Y	R	ROS-R	
R	H	\mathbf{L}	T	T	H	H	S	M	T	P	E	E	Y	R	ROS-AR	
R	H	L	M	${f T}$	H	H	N	L	S	P	E	E	Y	R	MUC-R	
E	K	W	D	L	P	v	D	· Y	P	М	v	А	P	A	WT-ROS	
E	K	W	D	L	P	v	D	Y	P	M	v	A	P	A	SYNROS	
E	K	W	D	L	P	T	D	Y	P	M	V	A	P	A	ROS-R	
E	K	W	D	L	Q	v	D	Y	P	M	v	A	P	A	ROS-AR	
D	K	W	D	L	P	A	D	Y	P	M	v	A	P	A	MUC-R	
			~	_	-	••	_	•	-	1-1	•	. А	P	A	MUC-R	
Y	A	E	A	R	s	R	L	Α	K	E	M	G	L	G	WT-ROS	
Y	A	E	A	R	S	R	${f L}$	Α	K	E	M	G.	L	G	SYNROS	
Y	Α	\mathbf{E}	A	R	s	R	L	A	K	E	M	G	L	G	ROS-R	
Y	Α	E	A	R	s	R	L	A	K	E	M	G	L	G	ROS-AR	
Y	A	E	A	R	s	R	L	A	K	E	M	G	L	G	MUC-AR	•
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Q	R	R	ĸ	R	G	R	G	1		А	A	Λ	ν		SYNROS	
Q	R	R	K	A	N	R	3								ROS-R	
Q Q	R	R	ĸ	R	R	G	ĸ								ROS-AR	
~						J	••								MUC-AR	

FIG. 1A

BEST AVAILABLE CCPY

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GCGGATCCCC	GGGTATGACT	GAGACTGCTT	ACGGTAACGC
TCAGGATCTT	CTTGTTGAGC	TTACTGCTGA	TATCGTTGCT
GCTTACGTTT	CTAACCACGT	TGTTCCTGTT	ACTGAGCTTC
CTGGACTTAT	CTCTGATGTT	CATACTGCAC	TTTCTGGAAC
ATCTGCTCCT	GCTTCTGTTG	CTGTTAACGT	TGAGAAGCAG
AAGCCTGCTG	TTTCTGTTCG	TAAGTCTGTT	CAGGATGATC
ATATCGTTTG	TTTGGAGTGT	GGTGGTTCTT	TCAAGTCTCT
CAAGCGTCAC	CTTACTACTC	ATCACTCTAT	GACTCCAGAG
GAGTATAGAG	AGAAGTGGGA	TCTTCCTGTT	GATTACCCTA
TGGTTGCTCC	TGCTTACGCT	GAGGCTCGTT	CTCGTCTCGC
TAAGGAGATG	GGTCTCGGTC	AGCGTCGTAA	GGCTAACCGT
C <i>CAAAAAAGA</i>	AGCGTAAGGT	CTGAGAGCTC	GC

FIG. 1B

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M ATG	T ACN	E GAR	T ACN	A GCN	Y TAY	G GGN	N AAY	A GCN	Q CAR	D GAY	L YTN	L YTN	V GTN	E GAR
L YTN	T ACN	A GCN	D GAY	I ATH	V GTN	A GCN	A GCN	Y TAY	V GTN	s WSN	N AAY	H CAY	V GTN	V GTN
P CCN	V GTN	T ACN	E GAR	L YTN	P CCN	G GGN	L YTN	I ATH	s WSN	D GAY	V GTN	H CAY	T ACN	A GCN
L YTN	s WSN	G GGN	T ACN	S. WSN	A GCN	P CCN	A GCN	s WSN	V GTN	A GCN	V GTN	N AAY	V GTN	E GAR
K AAR	Q CAR	K AAR	P CCN	A GCN	V GTN	s WSN	V GTN	R MGN	K AAR	s WSN	V GTN	Q CAR	D GAY	D GAY
Н	I	V	С	L	E	C	G	G	s	F	K	S	L	к
			C TGY											
CAY	ATH	GTN	TGY	YTN	GAR	TGY	GGN	GGN	WSN	TTY	AAR	WSN	YTN	AAR
CAY R	ATH H	GTN L		YTN T	GAR H	TGY H	GGN S	GGN M	WSN	TTY P	AAR E	WSN E	YTN Y	AAR R
CAY R MGN	ATH H CAY	GTN L YTN W	TGY T ACN D	YTN T ACN L	GAR H CAY	TGY H CAY V	GGN S WSN D	GGN M ATG Y	WSN T ACN P	TTY P CCN M	AAR E GAR V	WSN E GAR A	YTN Y TAY P	AAR R MGN A
CAY R MGN	ATH H CAY	GTN L YTN W	TGY T ACN	YTN T ACN L	GAR H CAY	TGY H CAY V	GGN S WSN D	GGN M ATG Y	WSN T ACN P	TTY P CCN M	AAR E GAR V	WSN E GAR A	YTN Y TAY P	AAR R MGN A
CAY R MGN E GAR	ATH CAY K AAR A	GTN L YTN W TGG E	TGY T ACN D GAY A	YTN T ACN L YTN R	GAR H CAY P CCN	TGY H CAY V GTN R	GGN S WSN D GAY	GGN M ATG Y TAY	T ACN P CCN K	P CCN M ATG	AAR E GAR V GTN M	WSN E GAR A GCN G	YTN Y- TAY P CCN L	AAR R MGN A GCN
CAY R MGN E GAR	ATH CAY K AAR A	GTN L YTN W TGG E	TGY T ACN D GAY	YTN T ACN L YTN R	GAR H CAY P CCN	TGY H CAY V GTN R	GGN S WSN D GAY	GGN M ATG Y TAY	T ACN P CCN K	P CCN M ATG	AAR E GAR V GTN M	WSN E GAR A GCN G	YTN Y- TAY P CCN L	AAR R MGN A GCN
R MGN E GAR Y TAY	H CAY K AAR A GCN	GTN L YTN W TGG E GAR	TGY T ACN D GAY A	YTN T ACN L YTN R MGN	GAR H CAY P CCN S WSN	TGY H CAY V GTN R MGN	GGN S WSN D GAY L YTN	GGN M ATG Y TAY A GCN	T ACN P CCN K AAR	P CCN M ATG E GAR	AAR E GAR V GTN M ATG	WSN E GAR A GCN G GGN	YTN YTAY PCCN L YTN	AAR R MGN A GCN

FIG. 1C

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ROS Inverted Repeat DNA Binding Sites (Operator sequences)

TATATTTCAA-TTTTA-TTGTAATATA

virC/virD

TATAATTAAAATATTAACTGTCGCATT

ipt

FIG. 1D

Comparison of ROS DNA Binding Site (Operator) Sequences

VirC/VirD

TATATTTCAA

TATATTACAA

ipt

TATAATTAAA

AATGCGACAG

TATAHTTCAA

g gaa g

Consensus

WATDHWKMAR

FIG. 1E

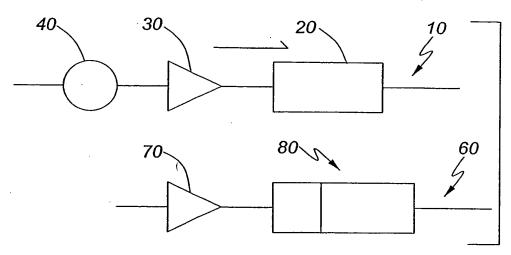
FIG. 2C

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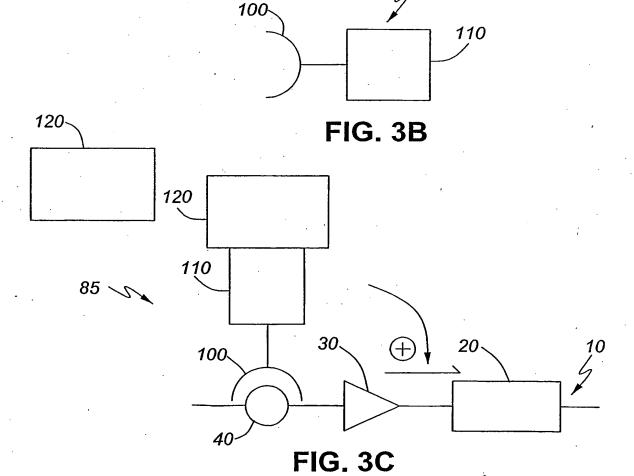
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FIG. 3A



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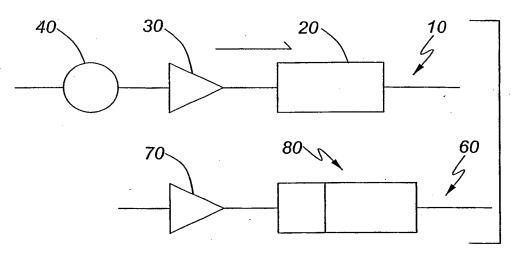


FIG. 4A

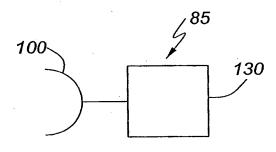
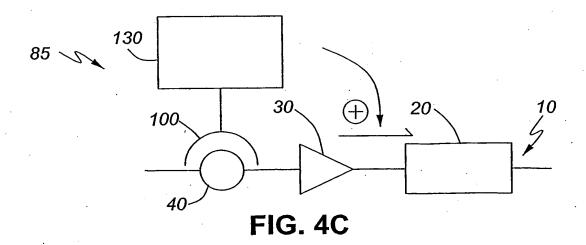


FIG. 4B



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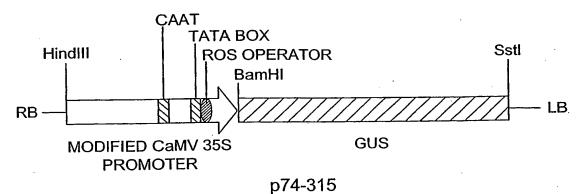


FIG. 5A

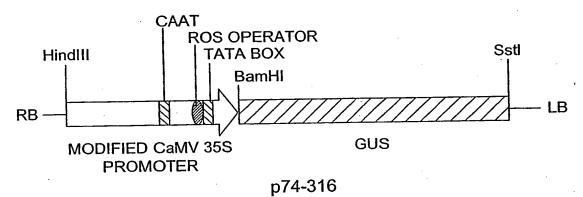


FIG. 5B

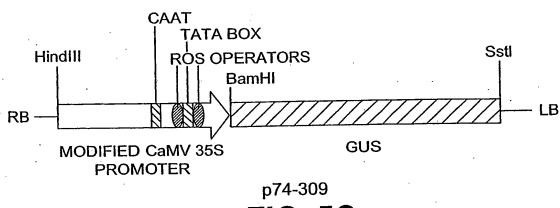


FIG. 5C

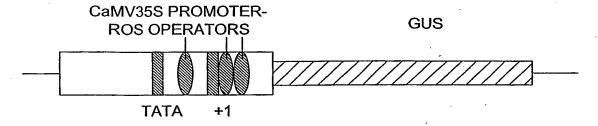
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p74-118 FIG. 5D

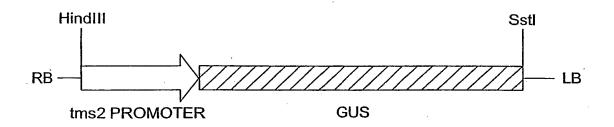
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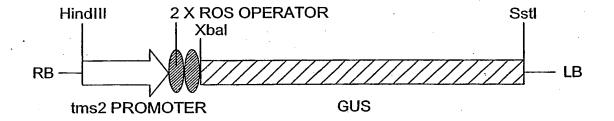
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p76-507 FIG. 6A



p76-508

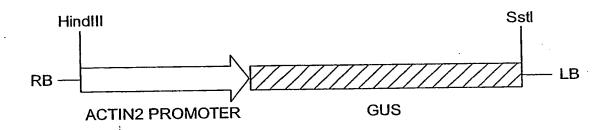
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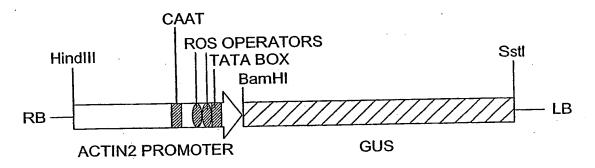
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p75-101 FIG. 7A



p74-501 FIG. 7B

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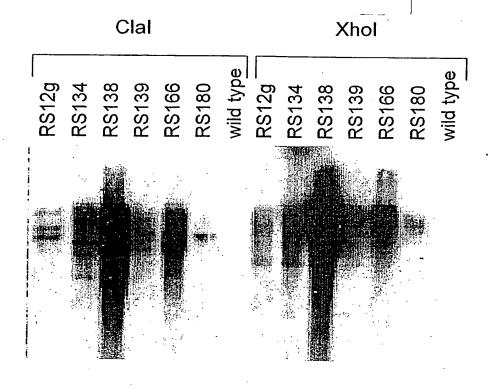


FIG. 8A

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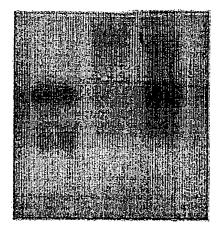


FIG. 8B

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FIG. 9

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b	nKCP	(1)	M-AGGGPTFSIELSAYG-SDLPTDKASGDIPNEEGSGLSRVGSGIW
а	tKCP	(1)	MELMAKPTFSIEVSQYGTTDLPATEKASSSSSSFETTNEEG-VEESGLSRIW
at	KCL1	(1)	MAS-LSSRIGLRRC
at	KCL2	(1)	MVGSSFGIGMAAYVRDHRGVSAQDKAVQTALFLADESGRGGSQIGIGLR
			•
b	nKCP	(45)	SGRTYDYSSESSSSIGTPGDSEEEDEESEEDNDEEELGLASL
а	tKCP	(52)	SGQTADYSSDSSS-IGTPGDSEEDEEESENENDDVSSKELGLRGLASM
at	KCL1	(36)	GRSPPPESSSSVGETSENEEDEDDAVSSSQGRWLNSFS
at	KCL2	(50)	MSNNNNKSPEESSDSSSSIGESSENEEEEEEDDAVSCQRGTLDSFS
			·

b	nKCP	(87)	RSLEDSLPSK-GLSSHYKGKSKSFGNLGEIG-SVKEVPKQENPLNKKRRLQI
а	tKCP	(99)	SSLEDSLPSKRGLSNHYKGKSKSFGNLGEIG-SVKEVAKQENPLNKRRRLQI
at	KCL1	(74)	SSLEDSLPIKRGLSNHYIGKSKSFGNLMEAS-NTNDLVKVESPLNKRRRLLI
at	KCL2	(96)	SSLEDSLPIKRGLSNHYVGKSKSFGNLMEAASKAKDLEKVENPFNKRRRLVI
b	nKCP	(137)	YNKLARKSFYSWQNPKSMPLLPVHEDNDDEEGDDG
а	tKCP	(150)	CNKLARKSFYSWQNPKSMPLLPVNEDEDDDDEEDLKSGFDEN
at	KCL1	(125)	ANKLRRRSSLSSFSIYTKINPNSMPLLALQESDNEDHKLNDDDDDDDSS
at	KCL2	(148)	ANKLRRRGRSITYEEDHHIHNDDYEDDDG
			*
k	onKCP	(172)	-DLSDEERGGDVLARRPSFKNRALKSMSCFALSDLQEEEEEEEDE
а	atKCP	(196)	KSSSDEEGVKKVVVRKGSFKNRAYKSRSCFALSDLIEEEDDDDDQ
at	KCL1	(174)	SDDETSKLKEKRMKMTNHRDFMVPQTKSCFSLTSFQDDDDR
at	KCL2	(177)	DGDDHRKIMMMKNKKELMAQTRSCFCLSSLQEEDDGDGDDDEDE

FIG. 10A

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Fig. 10B

GDDGDLSDEERGGDVLARRPSFKNRALKSMSCFALSDLQEEE bnKCP ATF-1 DSSDSIGSSQQAHGILARRPSYRKILKDLSSEDTRGRKGDGE hyCREB ESVDSVTDSQKRREILSRRPSYRKILNDLSSDAPGVPRIEEE CREB ESVDSVTDSQKRREILSRRPSYRKILNDLSSDAPGVPRIEEE CREM SADSEVIDSHKRREILSRRPSYRKILNELSSDVPGIPKIEEE cCREM AESEGVIDSHKRREILSRRPSYRKILNELSSDVPGVPKIEEE

Fig. 10C

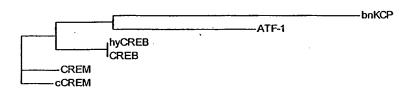


FIG. 10

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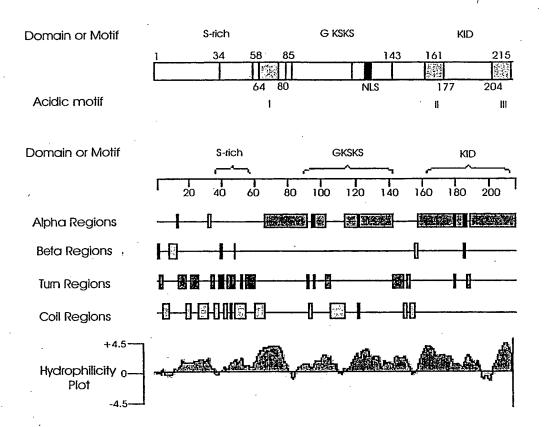


FIG. 11

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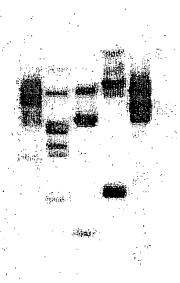
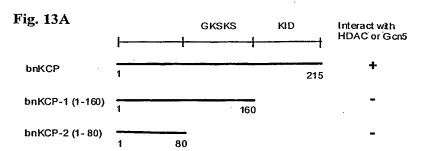


FIG. 12

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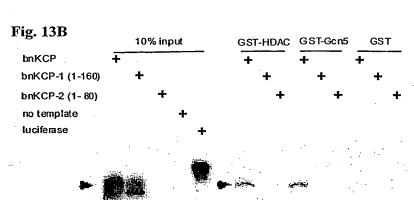


FIG. 13

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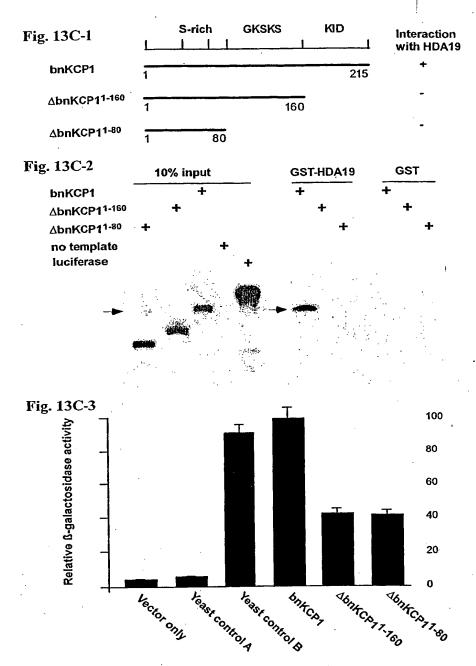


FIG. 13 cont'd

Inventor: HANNOUFA et al. Docket No.: 00270.0078USWO

Title: REGULATION OF GENE EXPRESSION USING CHROMATIN REMODELLING FACTORS

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Fig. 14A

 $\begin{tabular}{ll} Wild\ type\ KID\ GDDGDLSDEERGGDVLARRPSFKNRALKSMSCFALSDLQEEE \\ \end{tabular}$ (RRPS188)

 ${\tt GDDGDLSDEERGGDVLARRP\underline{G}FKNRALKSMSCFALSDLQEEE}$ **Mutant KID** (RRPG¹⁸⁸)

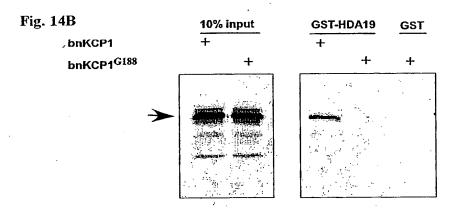


FIG. 14

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FIG. 15

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Fig. 16A

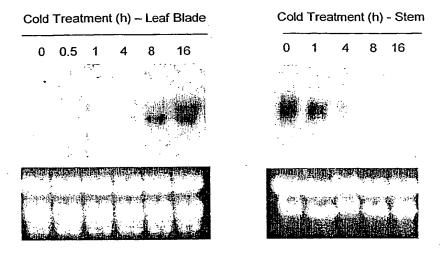


Fig. 16B

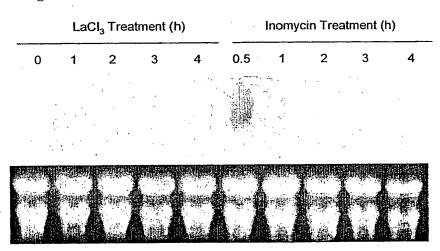
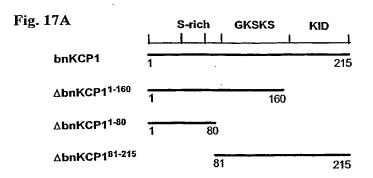


FIG. 16

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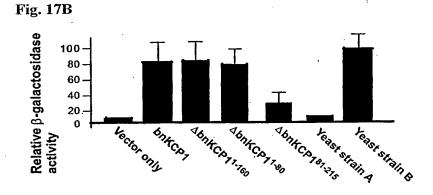


FIG. 17

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Fig. 18A

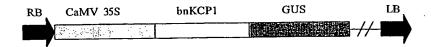


Fig. 18B

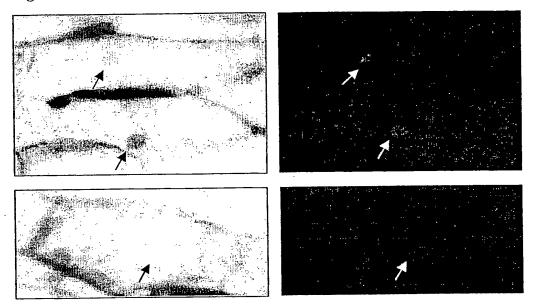


FIG. 18

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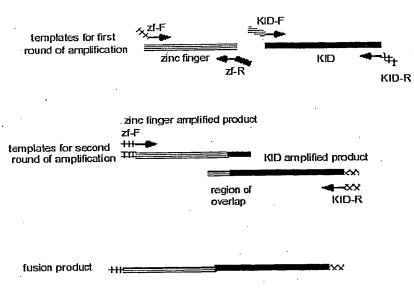
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Strategy for cloning zinc finger domain fusion with KID



RE site for zinc finger zinc finger domain KID domain RE site for KID domain

FIG. 19

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BnSCL1	(1)	MKLQASSPODNOPSNI
AtSCL15	(1·)	MKIPASSPOOTTNNN
LeSCL	(1)	MKVPFSTNDNVSSKPLVNSNNSFTFPAATNGSNLCYEPKSVLELRRSPSP
Безсъ	(- /	Carried Marie Control of the Control
BnSCL1	(17)	TNNSTDSNHLSMDEHMR-SMDWDSIMKELEVDDDSA
AtSCL15	(17)	MTNSTDSNHUSMDEHVMR-SMDWDSIMKELELDDDSA
LeSCL	(51)	IVDKQIITTNPDLSALEGEEDPLOLEDHVLSNFEDWDSLMRELGLHDDSA
Pegon	(01)	
BnSCL1	(53)	PYOLOPSSFNLPVFPDIDSSDVYPGPN
AtSCL15	(53)	ENSTRYGETTTTDSTILPEYAVDSNIEGEPDQIQPSDFESSSDVYPGQN
LeSCL	(101)	SLEKTNPLTHSESLTQFHNISEFSAESNOFPSPDFSFSDTNFEQQFETVN
	•	
BnSCL1	(80)	OIRGYGENSLDSVDNGGFDYEEDLIRVVDCIESDBLHLAHVVLSQL
AtSCL15	(103)	OTTGYGFNSI DSVDNGGFDFIEDLIRVVDCVESDELQLAGVVLSRL
LeSCL	(151)	QASFINALDLSGDIHONWSVGFDYVDELIRFAECETNAEOLAHVILARL
		LHRI

BnSCL1	(126)	norlotsagrploraafyfkealgsiltgtnrnoffswsdimokirau
AtSCL15	(149)	NORLRSPAGRPLORAAFYFKEALGSFLTGSNRNPIRLSSWSEUVORTRAA
LeSCL	(201)	NORLRSAAGKPLORAAFYFKEALOAOLAGSAROT-RSSSSDVIQHIKSY
BnSCL1	(174)	KEFSCISPIPLFSHFTANQAILDSHSSQSSSPFVHVVDFEIGEGGQXASI KEYSCISPIPLFSHFTANQAILDSHSSQSSSPFVHVVDFEIGEGGQXASI
AtSCL15	(199)	KITSNISPIPMFSSFTANOAVLEAVDGSMEVRVIDEDIGEGGHWASE
LeSCL	(250)	KI IISMISPI PWESSETANOAV LEAV DG SMEVITVI DE DI GEGGEMASE
		VHIID
D- 001 1	(224)	
BnSCL1	(224)	MREIMAEKSANGGELRVTAVVAEDCAVETRLVKENLTQFAAEMKIRF
AtSCL15	(249)	MRBIAEKSANGGELRVTAVVAEDCAVETRLVKENLTQFAAEMKIRF MRBIAEKSVSGGELRVTAVVAEECAVETRLVKENLTQFAAEMKIRF
		MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETTEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE
AtSCL15	(249)	MRBIAEKSANGGELRVTAVVAEDCAVETRLVKENLTQFAAEMKIRF MRBIAEKSVSGGELRVTAVVAEECAVETRLVKENLTQFAAEMKIRF
AtSCL15 LeSCL	(249) (297)	MREKACKSANGGELRVTAVVAEDCAVETRLVKENLTQFAAEMKIRE MREITEKSVSGGELRVTAVVAEECAVETRLVKENLTQFAAEMKIRE MKELADKAECRKANAPHLRITALVPEBYAVESRLIRENLTQFARELNIGE LHRU OTEFVLMKTEEILSFKAIRFVDGERTVVLISPAIFRRYIGIAEFVNNLGR
AtSCL15 LeSCL BnSCL1	(249) (297) (270)	MRE FAEKSANGGELRVTAVVÆEDCAVETRLVKENLTOFAÆMKIRE MRETTEKSVSGGELRVTAVVÆEECAVETRLVKENLTOFAÆMKIRE MKELÆDKÆECRKÆNAPILRITALVPEÐYAVESRIIRENLTOFÆRELNIGE LHRU OIEFVLMKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIÆFVNNLGR OIEFVLMKTFEMLSFKAIRFVEGERTVVLISPAIFRRMIGIÆFVNNLRR
AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295)	MRE FAEKSANGGELRVTAVVÆEDCAVETRLVKENLTOFAÆMKIRE MRETTEKSVSGGELRVTAVVÆEECAVETRLVKENLTOFAÆMKIRE MKELÆDKÆECRKÆNAPILRITALVPEÐYAVESRIIRENLTOFÆRELNIGE LHRU OIEFVLMKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIÆFVNNLGR OIEFVLMKTFEMLSFKAIRFVEGERTVVLISPAIFRRMIGIÆFVNNLRR
AtSCL15 LeSCL BnSCL1	(249) (297) (270)	MREKACKSANGGELRVTAVVAEDCAVETRLVKENLTQFAAEMKIRE MREITEKSVSGGELRVTAVVAEECAVETRLVKENLTQFAAEMKIRE MKELADKAECRKANAPHLRITALVPEBYAVESRLIRENLTQFARELNIGE LHRU OTEFVLMKTEEILSFKAIRFVDGERTVVLISPAIFRRYIGIAEFVNNLGR
AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295)	MRE FAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MREITIEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OTE EVLVKTEE ILSEKAIREVDGERTVVLISPAIERRMIGIAE EVNNLGR DIE EVLVKTEEMLSEKAIREVEGERTVVLISPAIERRLSGITDEVNNLRR EID EVLIRTEELLSEKAIREVEGERTVVLISPAIERRUG-SEFVNELRR
AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295)	MRE FAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRF MREITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRF MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OTEFVLVKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIAEFVNNLGR EIDFVLMKTFEMLSFKAIRFVEGERTVVLISPAIFRRLSGITDFVNNLRR EIDFVLIRTFELLSFKAIKFMEGEKTAVLLSPAIFRRVGSEFVNELRR WSPNVVVRVDSEGCTETAGSGSFRREEVSAEFYTMVLESLDAARPG
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL	(249) (297) (270) (295) (347)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETTEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OTEFVLYKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIAEFVNNLGR OTEFVLYKTFEMLSFKAIRFVEGERTVVLISPAIFRRMIGIAEFVNNLGR EIDFVLIRTFELLSFKAIRFVEGERTVVLISPAIFRRVGSEFVNELRR WSPNVVVEVDSEGCTETAGSGSFRREEVSALEFYTMVLESLDAAAPPG
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1	(249) (297) (270) (295) (347)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MREITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OIEFVLMKTFEILSFKAIREVDGERTVVLISPAIFRRVIGIAEFVNNLGR OIEFVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRVIGIAEFVNNLRR EIDFVLIRTFELLSFKAIKEMEGEKTPVLLSPAIFRRVGSEFVNELRR VSPNVVVEVDSEGCRETAGSGSFRREEVSAEEFYTMVLESLDAAAPPG VSPKVVVEVDSEGWTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295) (347) (320) (345)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETTEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OTEFVLYKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIAEFVNNLGR OTEFVLYKTFEMLSFKAIRFVEGERTVVLISPAIFRRMIGIAEFVNNLGR EIDFVLIRTFELLSFKAIRFVEGERTVVLISPAIFRRVGSEFVNELRR WSPNVVVEVDSEGCTETAGSGSFRREEVSALEFYTMVLESLDAAAPPG
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295) (347) (320) (345) (395)	MRE FAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETTEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRU OTEFVLVKTFEILSFKAIRFVDGERTVVLISPAIFRRMIGIAEFVNNLGR DIEVLMKTFEMLSFKAIRFVEGERTVVLISPAIFRRLSGITDFVNNLRR EIDFVLIRTFELLSFKAIKFMEGEKTVVLLSPAIFRRVGSEFVNELRR VSPNVVVEVDSEGCTETAGSGSFRREEVSAEEFYTMVLESLDAAAPPG VSPNVVVEVDSEGWTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVEVDSEGLMGYG-AMSFROTVIDGLEFYSTLLESLEAANIGGGN PFYRE
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295) (347) (320) (345) (395)	MRBIAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRBITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKBLADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARBLNIGE LHRU OIDEVLMKTFEILSFKAIREVDGERTVVLISPAIFRRMIGIAEFVNNLGR DIEVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRMIGIAEFVNNLGR EIDEVLIRTFELLSFKAIREVEGERTVVLISPAIFRRVGSEFVNELRR VSPNVVVFVDSEGCRETAGSCSFRREEVSALEFYTMVLESLDAAAPPG VSPNVVVFVDSEGWTEIAGSCSFRREEVSALEFYTMVLESLDAAAPPG USPNVVVFVDSEGWTEIAGSCSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVFVDSEGLMGYG-AMSFRETVIDGLEFYSTLLESLEAANIGGGN PFYRE DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL1	(249) (297) (270) (295) (347) (320) (345) (395)	MRBIAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRBITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKBLADKAECRKANAPELRITALVPEDYAVESRLIRENLTOFARBLNIGE LHRU OIDEVLMKTFEILSFKAIREVDGERTVVLISPAIFRRWIGIAEFVNNLGR OIDEVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRWIGIAEFVNNLGR EIDEVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRWGSEFVNELRR EIDEVLIRTFELLSFKAIKEMEGEKTEVLLSPAIFRRWGSEFVNELRR VSPNVVVFVDSEGCRETAGSCSFRREEVSALEFYTMVLESLDAAAPPG VSPNVVVFVDSEGWTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVFVDSEGMTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVFVDSEGLMGYG-AMSFRETVIDGLEFYSTLLESLEAANIGGGN PFYRE -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1	(249) (297) (270) (295) (347) (320) (345) (395)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MREITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKELADKAECRKANAPILRITALVPEDYAVESRLIRENLTOFARELNIGE LHRII OTEFVLMKTFEILSFKAIREVDGERTVVLISPAIFRRVIGIAEFVNNLGR OTEFVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRVIGIAEFVNNLRR EIDFVLIRTFELLSFKAIREWEGERTVVLISPAIFRRVGSEFVNTLRR VSPNVVVEVDSEGCRETAGSGSFRREEVSAEEFYTMVLESLDAAAPPG VSPKVVVEVDSEGWTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVEVDSEGLMGYG-AMSFROTVIDGLEFYSTILESLEAANIGGGN PFYRE -DEVKKIVETELDRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DIVKKIVETELDRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DIVKKTYEAFVIRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS
BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (270) (295) (347) (320) (345) (395) (368) (393)	MRBIAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRBITEKSVSGGELRVTAVVAEECAVETRLVKENLTOFAAEMKIRE MKBLADKAECRKANAPELRITALVPEDYAVESRLIRENLTOFARBLNIGE LHRU OIDEVLMKTFEILSFKAIREVDGERTVVLISPAIFRRWIGIAEFVNNLGR OIDEVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRWIGIAEFVNNLGR EIDEVLMKTFEMLSFKAIREVEGERTVVLISPAIFRRWGSEFVNELRR EIDEVLIRTFELLSFKAIKEMEGEKTEVLLSPAIFRRWGSEFVNELRR VSPNVVVFVDSEGCRETAGSCSFRREEVSALEFYTMVLESLDAAAPPG VSPNVVVFVDSEGWTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVFVDSEGMTEIAGSGSFRREEVSALEFYTMVLESLDAAAPPG ISPNVVVFVDSEGLMGYG-AMSFRETVIDGLEFYSTLLESLEAANIGGGN PFYRE -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS -DEVKKIVETELLRPKISAAVETAANRRSAGOMTWREMLCAAGMRPVOLS
AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL	(249) (297) (297) (295) (347) (320) (345) (395) (368) (393) (444)	MRE LAEKS
BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL	(249) (297) (297) (295) (347) (320) (345) (395) (368) (393) (444) (417)	MREIAEKS
BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15	(249) (297) (297) (295) (347) (320) (345) (395) (368) (393) (444) (417) (417)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETAEKS
BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL BnSCL1 AtSCL15 LeSCL	(249) (297) (297) (295) (347) (320) (345) (395) (368) (393) (444) (417)	MRETAEKSANGGELRVTAVVAEDCAVETRLVKENLTOFAAEMKIRE MRETAEKS

FIG. 20

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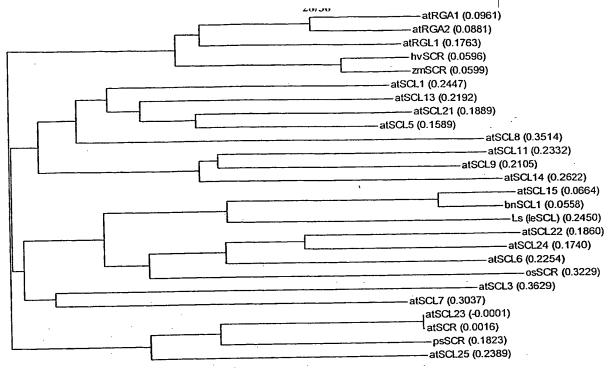


FIG. 21

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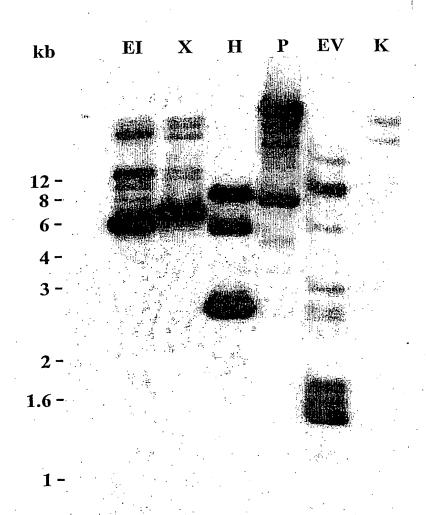


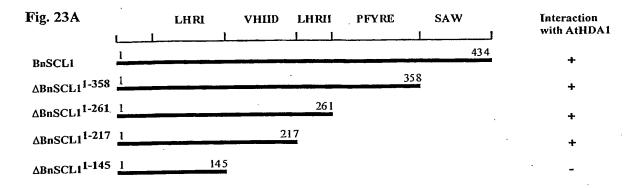
FIG. 22

Inventor: HANNOUFA et al. Docket No.: 00270.0078USWO

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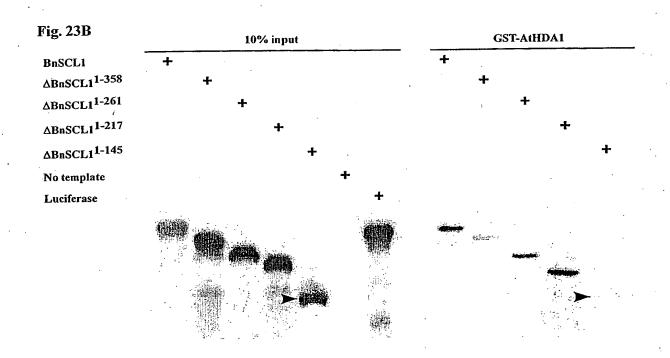
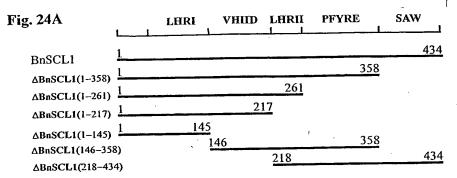


FIG. 23

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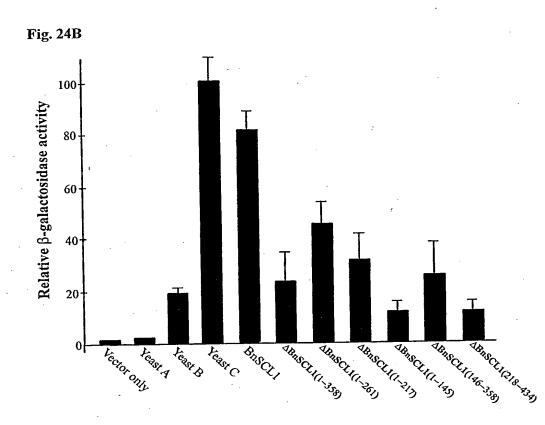


FIG. 24

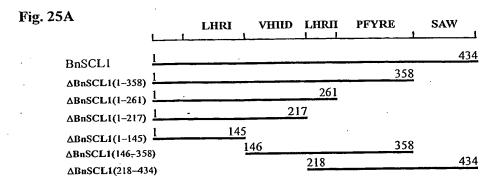
Inventor: HANNOUFA et al. Docket No.: 00270.0078USWO

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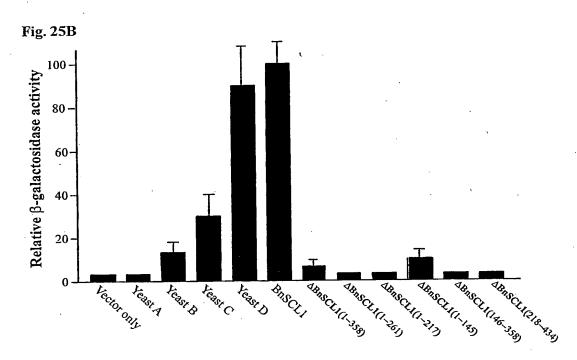


FIG. 25

Inventor: HANNOUFA et al.
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BnSCL1

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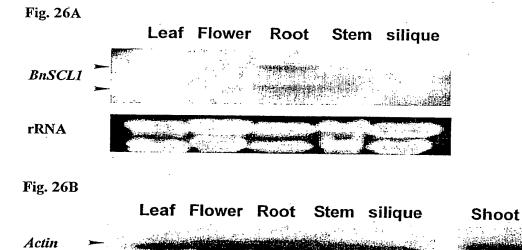


FIG. 26

Inventor: HANNOUFA et al.
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180

180

180

Actin

Actin

Actin

BnSCL1

Times (min)

BnSCL1≯

Times (min)

BnSCL1 3

Times (min)

0

0

30

30

30

Stem

Leaf Petiole

60

60

60

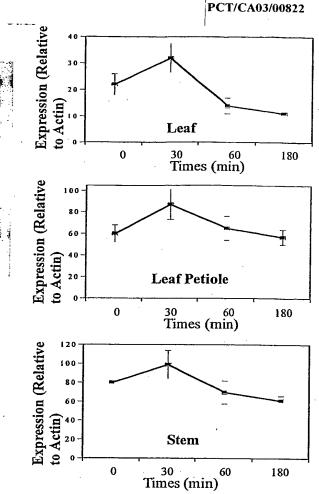


FIG. 27

Inventor: HANNOUFA et al. Docket No.: 00270.0078USWO

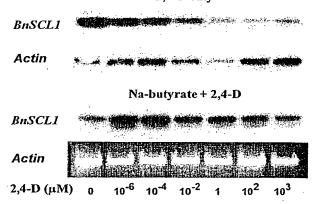
Title: REGULATION OF GENE EXPRESSION USING CHROMATIN REMODELLING

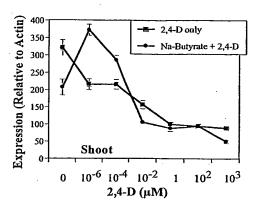
FACTORS

Attorney Name: Gregory A. Sebald
WO 03/104462 Phone No.: 612.336.4728
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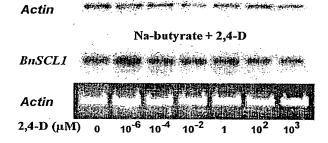


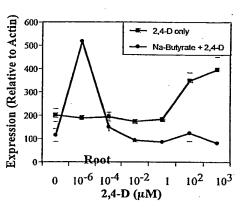


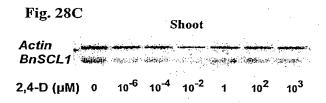












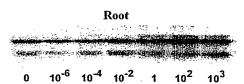


FIG. 28

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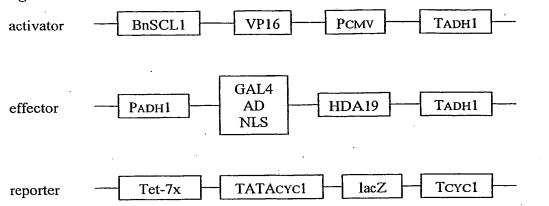
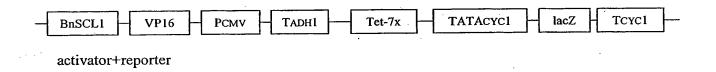


Fig. 29B



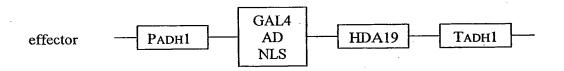


FIG. 29

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